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EXAMINER	
POLYZOS, FAYE S	

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2884	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/714,692	GOTZ ET AL.
	Examiner	Art Unit
	Faye Polyzos	2884

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *30-32 and 49* is/are allowed.

6)☒ Claim(s) *1-4,7-9,12-14,17-21,24,26-29,33-48,50-52* is/are rejected.

7)☒ Claim(s) *5,6,10,11,15,16,22,23,25 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/03,6/04,12/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 36-40, 44 and 51-52 are rejected under 35 U.S.C. 102(b) as being anticipated by *Hollander et al (US 5,823,678 A).*

Regarding claim 36, Hollander discloses a radiometer (10), comprising: an IR detector (16); a lens being arranged with respect to the IR detector such that the lens focuses IR radiation from a measuring surface to the detector; a light source (12) emitting visible light (14) for marking the measuring surface; the marking providing a visible indication based upon a reading of the IR detector (col. 5, lines 20-40).

Regarding claim 37, the radiometer (10) wherein an optical axis is defined by the IR detector (16) and the lens; the beam path of the visible light emitted by the light source extends towards the optical axis without necessarily intersecting same, and being deviated by a deviating means in the proximity of the optical axis so that the beam path of the visible light extends from there along the optical axis (col. 5, lines 20-40 and col. 6, lines 57-60).

Regarding claim 38, Hollander discloses the radiometer wherein the deviating means is formed such that the deviating means deflects light beams encountering the

deviating means at different locations about different angles (col. 7, lines 59-67 and col. 8, lines 1-2).

Regarding claims 39-40, Hollander discloses the deviating means is formed by a prism or by a mirror (col. 6, lines 57-60).

Regarding claim 44, Hollander discloses a radiometer, comprising: an IR detector; a light source emitting visible light for marking a measuring surface; and a lens being arranged with respect to the IR detector (16) such that it focuses IR radiation (14) from a measuring surface to the detector; the lens being inclined versus the optical axis so that the reflected portion of the IR radiation encountering the outer side of the lens is smaller than a reflected portion of the light of the light source encountering the outer side of the lens (col. 5, lines 20-66).

Regarding claim 51, Hollander discloses a method for a radiometer (10), comprising: focusing IR radiation (14) emitted by a measuring surface by means of a lens on an IR detector (16); determining a temperature of the measuring surface on the basis of a signal supplied by the IR detector (col. 3, lines 47-57 and col. 5, lines 20-66).

Regarding claim 52, Hollander discloses a method for a radiometer (10), comprising: focusing IR radiation (14) emitted by a measuring surface by means of a lens on an IR detector (16); the lens being inclined versus an optical axis; determining a temperature of the measuring surface (20) on the basis of a signal supplied by the IR detector; emitting visible light onto an outer surface of the lens so that a reflected portion of the IR radiation encountering an outer side of the lens is smaller than the reflected portion of the visible light of the light source encountering the outer side of the

lens; and marking the measuring surface by the visible light reflected by the outer surface of the lens (col. 5, lines 20-66).

3. Claims 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by *Meier et al (US 3,775,620).*

Regarding claim 28, *Meier* discloses a sighting device for a radiometer for visibly marking a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source for emitting a visible light beam marking the measuring surface; the light source guiding the light beam at a constant angular velocity and the sighting device comprising a sectorized mirror upon which the light beam falls; the sectorized mirror causing a stepwise change of a direction of the light beam so that the light beam marks the measuring surface with points (col. 3, lines 60-67, col. 4, lines 1-54 and col. 8, lines 40-60).

Regarding claim 29, *Meier* discloses a sighting device wherein sectorized mirror comprises three concave sectors (claim 4).

4. Claim 47 is rejected under 35 U.S.C. 102(b) as being anticipated by *Needham et al (US 4,466,748).*

Regarding claim 47, Needham discloses a method for a radiometer of visibility marking a measuring surface, comprising: emitting a visible light beams by at least three light sources for marking the measuring surface; each light source emitting one light beam; and switching the light sources on and off; at most two light sources being switched on simultaneously (See Generally Fig. 1 and col. 4, lines 15-53).

5. Claim 48 is rejected under 35 U.S.C. 102(b) as being anticipated by *Stein et al (US 4,417,822)*.

Regarding claim 48, Stein discloses a method for a radiometer of visibility marking a measuring surface, comprising: emitting a visible light beam by a light source (1) for marking the measuring surface; guiding the light beam at a constant angular velocity; and changing a direction of the light beam stepwise by a sectorized mirror (22) (col. 3, lines 17-37, col. 6, lines 47-68, col. 7, lines 1-12 and col. 7, lines 46-60).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 6,540,398 B2)* and *Ogikubo et al (US 5,270,528 A)*.

Regarding claim 1, Hollander discloses a sighting device (12) for a radiometer (10) for visibly marking (18) a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source (12) for emitting a visible light beam (14) marking surface; and controlling a direction of the light beam (col. 4, lines 60-67, col. 5, lines 1-4, col. 6, lines 54-67, col. 7 and lines 1-7). Hollander does not disclose a piezoactuator as the controller of light beam direction. Ogikubo discloses of a radiometer wherein a piezoacutator controls the direction of the light beam utilized in the

apparatus (col. 2, lines 35-40). Ogikubo teaches a means for changing the optical distance comprises an actuator in the form of a wedge shaped glass or a piezoelectric element disposed on the optical path. By shifting the focal point, it is possible to conduct uniform light to the radiometer even when the subject of observation has a luminance distribution and uniform reference light is achievable over a broad visible range (col. 2, lines 35-56). Therefore, it would have been obvious to modify the apparatus suggested by Hollander, to incorporate a piezoactuator as a means to control the light beam direction, as disclosed supra by Ogikubo, to allow for a more versatile apparatus.

Regarding claim 7, Ogikubo discloses the sighting device wherein the light source is attached to the actuator (col. 6, lines 21-34).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 6,540,398 B2)* and *Ogikubo et al (US 5,270,528 A)* as applied to claim 1 above, and further in view of *Morgan et al (US 2005/0174473 A1).*

Regarding claim 2, Hollander discloses a sighting device (12) for a radiometer (10) for visibly marking (18) a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source (12) for emitting a visible light beam (14) marking surface; and controlling a direction of the light beam (col. 4, lines 60-67, col. 5, lines 1-4, col. 6, lines 54-67, col. 7 and lines 1-7). Ogikubo discloses of a radiometer wherein a piezoacutator controls the direction of the light beam utilized in the apparatus (col. 2, lines 35-40). Neither Hollander nor Ogikubo specifically disclose of the piezoactuator being a piezobending actuator. Morgan discloses a sighting device for a

radiometer comprising: a piezobending actuator (paragraphs [0217]-[0218]). Morgan teaches actuation of variable optics can be through any kind of actuator, such as an electric motor, piezoelectric device, thermal actuator, motor, gyro, servo, lever, gear, gear system, screw drive, drive mechanism, flywheel, wheel, or one of many well-known techniques for motion control. Manual control can be through an adjustment mechanism that varies the relative geometry of lens, diffusion materials, reflecting surfaces or refracting elements. The adjustment mechanism may use a sliding element, a lever, screws, or other simple mechanical devices or combinations of simple mechanical devices. A manual adjustment or motion control adjustment may allow the flexing of optical surfaces to bend and shape the light passed through the system or reflected or refracted by the optical system (paragraphs [0217]-[0218]). Therefore, it would have been obvious to modify the apparatus suggested Hollander and Ogikubo, to incorporate a piezobending type actuator, as disclosed by Morgan, to allow for a more versatile apparatus.

9. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 6,540,398 B2)* and *Ogikubo et al (US 5,270,528 A)* as applied to claim 1 above, and further in view of *Stein et al (US 4,417,822).*

Regarding claim 3, Hollander discloses a sighting device (12) for a radiometer (10) for visibly marking (18) a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source (12) for emitting a visible light beam (14) marking surface; and controlling a direction of the light beam (col. 4, lines 60-67, col. 5, lines 1-4, col. 6, lines 54-67, col. 7 and lines 1-7). Ogikubo discloses of a radiometer

wherein a piezoacutator controls the direction of the light beam utilized in the apparatus (col. 2, lines 35-40). Neither Hollander nor Ogikubo disclose the of segmented mirrors. Stein discloses a sighting device for a radiometer wherein the sighting device comprises a segmented mirror for dividing the light beam by the light source into different sighting beams across a time-division multiplex method (col. 5, lines 5-18). Stein teaches in this manner, a differential signal between the synchronously detected black body and radiant source signals is proportional to the difference in the radiance of the subject source an the reference black body (col. 5, lines 5-18). Therefore, it would have been obvious to modify the apparatus suggested by Hollander and Ogikubo, to incorporate a segmented mirror, as disclosed supra by Stein, to allow for a more versatile apparatus.

Regarding claim 4, Stein discloses the light source is a laser; a first mirror being attached on the actuator which can be moved by the actuator and deviates the laser beam to a segmented mirror, wherein each segment of the segmented mirror deflects the laser beam for marking the measuring surface (col. 6, lines 47-68 and col. 7, lines 46-53).

10. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 6,540,398 B2)* and *Ogikubo et al (US 5,270,528 A)* as applied to claim 1 above, and further in view of *Stone et al (US 6,704,607 B2).*

Regarding claim 8, Hollander discloses a sighting device (12) for a radiometer (10) for visibly marking (18) a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source (12) for emitting a visible light beam (14) marking surface; and controlling a direction of the light beam (col. 4, lines 60-67, col. 5,

lines 1-4, col. 6, lines 54-67, col. 7 and lines 1-7). Ogikubo discloses of a radiometer wherein a piezoacutator controls the direction of the light beam utilized in the apparatus (col. 2, lines 35-40). Neither Hollander nor Ogikubo disclose wherein the light source is rotatably suspended such that the piezoactuator can rotate the light source. Stone discloses a sighting device wherein the light source is rotatably suspended and comprises a guide mechanism into which one end of the actuator is rotatably attached such that the piezoactuator can rotate the light source (col. 8, lines 36-55 and col. 9, lines 36-45). Stone teaches the solar concentrator can be positioned by a variety of different mechanisms, the positioning mechanism typically includes a motor and the aximuthal and elevational drive mechanism in order to appropriately position the solar concentrator in both the aximuth rotational plane and the elevational rotational plane. In this regard, the elevational drive mechanism includes, the linear actuator responsive to the motor (col. 9, lines 36-45). Therefore, it would have been obvious to modify the device suggested by Hollander and Ogikubo, to include a rotatable light source, as disclosed supra by Stone, to allow for a more versatile sighting device.

Regarding claim 9, Stone discloses the light source is rotatably suspended and is connected, via wires, with one end of the actuator such that the actuator can rotate the light source (col. 8, lines 36-55 and col. 9, lines 36-45).

11. Claims 21, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A)* and *Stone et al (US 5,477,332 A).*

Regarding claim 21, Hollander discloses a sighting device for a radiometer (10), for visibly marking a measuring surface, a temperature of which is measured by a

radiometer comprising a light source (12) emitting visible light beam (14); and the light source (12) being arranged such that light beams generate bright points at the edge of the measuring surface (col. 5, lines 20-40). Hollander does not disclose of at least three light sources or of a control circuit for switching between light sources. Stone discloses a radiometer wherein at least three light sources (14) each of which emits a visible light beam; and the light sources being arranged such that the light beams generate bright points at an edge of the measuring surface; and a control circuit for switching the light sources on and off; the control circuit being connected to each of the light sources and being constructed such that at most two light sources are switched on simultaneously (col. 3, lines 24-37, col. 6, lines 49-62). Stone teaches due to surface waviness, surface irregularities and other surface characteristics of the object, the light emitted from each of the source lights and emanating from certain object locations will also be reflected from these object locations at different angles into the camera. The source light reflections will therefore be in different positions in the camera image than other source light reflections even though the reflections emanate from the same point on the object. The different reflected light angles and the resulting different camera image positions of the light reflections and light intensity provide sufficient data to yield a measured slope at various distances from a reference position and, from those slope values, further yields radius of curvature as well as slope and cant angle measurements and surface waviness of the surface in each of two directions. Since the position of the light source array and the relative positions of the light sources in the array are known, the incident angle of the light beam on the object illuminated is known for each of the light sources,

thereby enabling determination of the slope angles at each point on the object (col. 3, lines 59-67 and col. 4, lines 1-11). Therefore, it would have been obvious to modify the sighting device suggested by Hollander, to include a plurality of light sources, as disclosed supra by Stone, to allow for a more versatile sighting device for a radiometer.

Regarding claim 24, Hollander discloses a sighting device wherein a subgroup of all points is illuminated, the subgroup being associated with a measured state (col. 3, lines 24-37, col. 6, lines 49-62).

Regarding claim 26, Stone discloses a sighting device wherein the control circuit comprises a switching element including a switching element for each light source; each light source being connected to a switching element and all switching elements being connected to a controller, wherein the controller controls the brightness of the light source connected therewith (col. 3, lines 24-37, col. 6, lines 49-62).

12. Claim 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A)* and *Stone et al (US 5,477,332 A)* as applied to claim 26 above, and further in view of *Marshall et al (US 6,515,285 B1)*.

Regarding claim 27, Hollander discloses a sighting device for a radiometer (10), for visibly marking a measuring surface, a temperature of which is measured by a radiometer comprising a light source (12) emitting visible light beam (14); and the light source (12) being arranged such that light beams generate bright points at the edge of the measuring surface (col. 5, lines 20-40). Stone discloses a radiometer wherein at least three light sources (14) each of which emits a visible light beam; and the light sources being arranged such that the light beams generate bright points at an edge of

the measuring surface; and a control circuit for switching the light sources on and off; the control circuit being connected to each of the light sources and being constructed such that at most two light sources are switched on simultaneously (col. 3, lines 24-37, col. 6, lines 49-62). Neither Hollander nor Stone disclose the control circuit (114) comprises a digital/analog converter. Marshall discloses a sighting device wherein the control circuit comprises a digital/analog converter (analog to digital converter) and a processor; the processor (108) being connected to the switching circuit for controlling the same and for switching on a light source; the processor being connected to the digital/analog converter and supplying a digital target value to the digital/analog converter; the digital analog converter converting the digital target value into an analog target value supplied by the digital/analog converter to the controller, wherein the controller is moreover supplied with an actual value for a photodiode; the photodiode measuring the brightness of the switched on light source; and the controller supplying its output to the switched on light source via a switching circuit (col. 6, lines 32-67 and col. 7, lines 1-11) Marshall teaches the radiation sensor array and the processing circuitry may be monolithically formed on a single semiconductor substrate. In particular, the processing circuitry may include one or more amplifiers to amplify the electronic signals from the radiation sensor array, as well as one or more analog to digital converters to convert the amplified electronic signals to digital signals. Additionally, the processing circuitry may include other circuitry to add or subtract a variety of offset values to one or both of the amplified electronic signals and the digital signals, so as to compensate the signals for any of a number of undesirable artifacts.

Such artifacts may include, but are not limited to, nonuniformities between individual sensors in the array, electronic offsets of any amplifiers or analog to digital converters in the processing circuitry, signal artifacts due to temperature variations of the sensors and/or processing circuitry, ambient temperature variations, and the like (col. 6, lines 33-50). Therefore, it would have been obvious to modify the sighting device disclosed by Hollander and Stone to include a control circuit comprising a digital/analog converter, as disclosed supra by Marshall, to allow for a more versatile sighting device.

13. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A)* as applied to claim 37 above, and further in view of *Nguyen et al (US 5,836,694 A).*

Regarding claim 41, Hollander discloses the radiometer (10) wherein an optical axis is defined by the IR detector (16) and the lens; the beam path of the visible light emitted by the light source extends towards the optical axis without necessarily intersecting same, and being deviated by a deviating means in the proximity of the optical axis so that the beam path of the visible light extends from there along the optical axis (col. 5, lines 20-40 and col. 6, lines 57-60). Hollander does not specifically disclose of the deviating means comprising a hole. Nguyen discloses an IR temperature sensing device wherein the deviating means comprises a hole about the optical axis (111) through which the IR radiation (180) can fall upon the detector (116) (col. 5, lines 59-67 and col. 6, lines 1-11). Nguyen teaches the beam splitter in the apparatus also includes a cored-out hole or a bore aligned along optical axis wherein the cored-out hole allows the laser beam to reflect from laser aiming mirrors to pass

unobstructed along optical axis toward target. Preferably, the size of the hole is large enough to allow the entire laser beam to pass through unobstructed (col. 5, lines 59-67 and col. 6, lines 1-11). Therefore, it would have been obvious to modify the apparatus suggested by Hollander to include a deviating means comprising a hole, as suggested supra by Nguyen, to allow for a more versatile apparatus.

Regarding claim 42, Nguyen discloses the second lens for visible light is arranged between the light source and the deviating means (col. 2, lies 1-22).

Regarding claim 43, Nguyen discloses the lens comprises a bore where the visible light passes the lens (col. 7, lines 3-22).

14. Claims 12 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A)* in view of *De Ment et al (US 3,641,354).*

Regarding claim 12, Hollander discloses a sighting device for a radiometer (10), for visibly marking a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source for emitting a visible light beam the measuring surface; and an actuator for controlling a direction of the light beam (col. 3, lines 47-57 and col. 5, lines 20-66). Hollander does not disclose wherein the actuator comprises a coil. De Ment discloses a radiometer comprising: a controlling means wherein the direction of the light beam is controlled by an actuator, wherein the actuator comprises a coil; a magnet being located in an interior of the coil so that, in response to a current flow through the coil, the coil presses the magnet out of the coil or pulls it into the coil (col. 9, lines 59-68 and col. 11, lines 14-23). De Ment teaches the actuating system, also termed "pulse hydraulics" transmits pressure pulses with not gross movement of

the liquid comprising the fluid optic. Fluidic drivers include, in addition to certain fluidic devices describes subsequently, piezoelectric, moving coil, electroacoustic and electromagnetic, and variable reluctance actuators. The frequencies may range quite widely, depending upon size and performance characteristics as for example generally downward for several hundreds of kilohertz (col. 9, lines 59-68). Therefore, it would have been obvious to modify the method suggested by Hollander to include a controlling means comprising a magnetic actuator, as disclosed supra by De Ment, to allow for a more versatile method of visibly marking a measuring surface.

Regarding claim 17, De Ment discloses the sighting device wherein the light source is attached to the actuator (col. 9, lines 59-68 and col. 11, lines 14-23).

Regarding claim 45, Hollander discloses a method for a radiometer (10) of visibility marking a measuring surface, comprising: emitting a visible light beam (14) by a light source (16) for marking the measuring surface; and controlling a direction of the light (col. 5, lines 20-66 and col. 6, lines 57-60). Hollander does not disclose a piezoactuator. De Ment discloses a radiometer comprising: controlling a direction of the light beam by means of a piezoactuator (col. 9, lines 59-68). De Ment teaches the actuating system, also termed "pulse hydraulics" transmits pressure pulses with not gross movement of the liquid comprising the fluid optic. Fluidic drivers include, in addition to certain fluidic devices describes subsequently, piezoelectric, moving coil, electroacoustic and electromagnetic, and variable reluctance actuators. The frequencies may range quite widely, depending upon size and performance characteristics as for example generally downward for several hundreds of kilohertz

(col. 9, lines 59-68). Therefore, it would have been obvious to modify the method suggested by Hollander to include a means of a piezoactuator, as disclosed supra by De Ment, to allow for a more versatile method of visibly marking a measuring surface.

Regarding claim 46, Hollander discloses a method for a radiometer (10) of visibly marking a measuring surface; and controlling the direction of the light beam by means of an actuator (col. 3, lines 47-57 and col. 5, lines 20-66). Hollander does not disclose wherein the actuator comprises a coil. De Ment discloses a radiometer comprising: a controlling means wherein the direction of the light beam is controlled by an actuator, wherein the actuator comprises a coil; a magnet being located in an interior of the coil so that, in response to a current flow through the coil, the coil presses the magnet out of the coil or pulls it into the coil (col. 9, lines 59-68 and col. 11, lines 14-23). De Ment teaches the actuating system, also termed "pulse hydraulics" transmits pressure pulses with not gross movement of the liquid comprising the fluid optic. Fluidic drivers include, in addition to certain fluidic devices describes subsequently, piezoelectric, moving coil, electroacoustic and electromagnetic, and variable reluctance actuators. The frequencies may range quite widely, depending upon size and performance characteristics as for example generally downward for several hundreds of kilohertz (col. 9, lines 59-68). Therefore, it would have been obvious to modify the method suggested by Hollander to include a controlling means comprising a magnetic actuator, as disclosed supra by De Ment, to allow for a more versatile method of visibly marking a measuring surface.

15. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A)* and *De Ment et al (US 3,641,354)* as applied to claim 12 above, and further in view of *Laufer et al (US 6,853,452 B1).*

Regarding claim 13, Hollander discloses a method for a radiometer (10) of visibly marking a measuring surface; and controlling the direction of the light beam by means of an actuator (col. 3, lines 47-57 and col. 5, lines 20-66). De Ment discloses a radiometer comprising: a controlling means wherein the direction of the light beam is controlled by an actuator, wherein the actuator comprises a coil; a magnet being located in an interior of the coil so that, in response to a current flow through the coil, the coil presses the magnet out of the coil or pulls it into the coil (col. 9, lines 59-68 and col. 11, lines 14-23). Neither Hollander nor De Ment discloses the sighted device comprising segmented mirrors. Laufer discloses a sighting device comprising a segmented mirror (48)(50) for dividing the light beam emitted by the light source into different sighting beams (36) and (40) according to a time-division multiplex method (col. 11, lines 36-60 and col. 13, lines 19-43). Laufer teaches a single detector assembly alternately receives the signals from first optical path and second optical path. For example, detector assembly may first detect the power of first portion of beam. The detector assembly produces a sample signal based on this detection, and the sample signal is stored in a memory device, which may be part of a detector output comparison device, such as a conventional computer memory. Then switching devices and operate to direct second portion of light or radiation beam to detector assembly, which will produce a reference signal indicative of the power of second portion of beam (col. 13, lines 19-

43). M Therefore, it would have been obvious to modify the sighting device disclosed by Hollander and De Ment, to include a segmented mirror for dividing the light beam, as suggested supra by Laufer, to allow for a more versatile sighting device.

Regarding claim 14, Laufer discloses a sighting device wherein the light source is a laser; a first mirror being attached to the actuator, which can be moved by the actuator and deviates the laser beam to a segmented mirror, wherein each segment of the segmented mirror deflects the laser beam for marking of the measuring surface (col. 11, lines 36-60 and col. 13, lines 19-43).

16. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Hollander et al (US 5,823,678 A and De Ment et al (US 3,641,354)* as applied to claim 12 above, and further in view of *Stone et al (US 6,704,607 B2).*

Regarding claim 18, Hollander discloses a sighting device for a radiometer (10), for visibly marking a measuring surface, the temperature of which is measured by the radiometer, comprising: a light source for emitting a visible light beam the measuring surface; and an actuator for controlling a direction of the light beam (col. 3, lines 47-57 and col. 5, lines 20-66). De Ment discloses a radiometer comprising: a controlling means wherein the direction of the light beam is controlled by an actuator, wherein the actuator comprises a coil; a magnet being located in an interior of the coil so that, in response to a current flow through the coil, the coil presses the magnet out of the coil or pulls it into the coil (col. 9, lines 59-68 and col. 11, lines 14-23). Neither Hollander nor De Ment discloses wherein the light source is rotatably suspended such that the piezoactuator can rotate the light source. Stone discloses a sighting device wherein the

light source is rotatably suspended and comprises a guide mechanism into which one end of the actuator is rotatably attached such that the piezoactuator can rotate the light source (col. 8, lines 36-55 and col. 9, lines 36-45). Stone teaches the solar concentrator can be positioned by a variety of different mechanisms, the positioning mechanism typically includes a motor and the aximuthal and elevational drive mechanism in order to appropriately position the solar concentrator in both the aximuth rotational plane and the elevational rotational plane. In this regard, the elevational drive mechanism includes, the linear actuator responsive to the motor (col. 9, lines 36-45). Therefore, it would have been obvious to modify the device suggested by Hollander and Ogikubo, to include a rotatable light source, as disclosed supra by Stone, to allow for a more versatile sighting device.

17. Claims 33-34 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Needham et al (US 4,466,748 A)* in view of *Salmon et al (US 2004/00798700 A1).*

Regarding claim 33, Needham discloses a sighting device for a radiometer for visibly marking a measuring surface, a temperature of which is measured by the radiometer, comprising: a plurality of light sources (12). Needham does not specifically disclose a plurality of individual receptors. Salmon discloses a radiometer comprising a plurality of individual receptacles; one individual receptacle being provided for fixedly receiving each light source, wherein an optical axis of each light source is aligned parallel to a mechanical axis of the corresponding individual receptacle (paragraph [0249]). Salmon teaches the thermal source may be manually mountable and/or demountable, or it may comprise a receptacle provided adjacent the focal plane array

capable of holding a source of hot or cold loads [0249]). Therefore it would have been obvious to modify the apparatus suggested by Needham to include individual receptacles, as disclosed supra by Salmon, to allow for a more versatile radiometer.

Regarding claim 34, Salmon discloses the outer shape of each individual receptacle is conical (See Generally Fig. 3A).

Regarding claim 50, Hollander discloses a method for a radiometer (10) for adjusting a light source for visibly marking a measuring surface (col. 5, lines 20-66). Hollander does not disclose of the light sources introduced into an individual receptacle. Salmon discloses introducing each light source of a plurality of light sources into an individual receptacle; aligning an optical axis of the light sources parallel to a mechanical axis of the corresponding individual receptacle; and assembling the light sources together with the receptacles into a sighting device (paragraph [0249]). Salmon teaches the thermal source may be manually mountable and/or demountable, or it may comprise a receptacle provided adjacent the focal plane array capable of holding a source of hot or cold loads [0249]). Therefore it would have been obvious to modify the method suggested by Hollander to include individual receptacles, as disclosed supra by Salmon, to allow for a more versatile radiometer.

Allowable Subject Matter

18. Claims 30-32 and 49 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding independent claim 30, the prior art does not disclose or fairly suggest a sighting device for a radiometer for visibly marking a measuring surface, the temperature of which is measured by the radiometer, comprising: individual receptacle having a hollow space being larger than the outer dimensions of the housing of the light source and receiving the housing of the light source wherein fixation fixing the housing of the light source in the hollow space; the fixation being formed such that an optical axis of the light source extends parallel to a mechanical axis of the individual receptacle.

The examiner notes that while it is known in the art for a radiometer for adjusting a light source for visibly marking a measuring surface, comprising: introducing each light source of a plurality of light sources into an individual receptacle and assembling the light sources together with the receptacles into a sighting device (see for example *Salmon et al. - US 2004/0079870 A1* – paragraph [0249]), the prior art does not fairly suggest a housing of light sources introduced into an individual receptacle and fixing the housing of the light sources within each individual receptacle.

Regarding independent claim 49, the prior art does not disclose or fairly suggest a method for a radiometer for adjusting a light source for visibly marking a measuring surface, comprising introducing a housing of a light source into an individual receptacle by fixing the housing of the light source within each individual receptacle.

The examiner notes that while it is known in the art for a radiometer for adjusting a light source for visibly marking a measuring surface, comprising: introducing each light source of a plurality of light sources into an individual receptacle and assembling the light sources together with the receptacles into a sighting device (see for example

Salmon et al. - US 2004/0079870 A1 – paragraph [0249]), the prior art does not fairly suggest a housing of light sources introduced into an individual receptacle and fixing the housing of the light sources within each individual receptacle.

The remaining claims 31-32 are allowable based on their dependency.

19. Claims 5-6, 10-11,15-16, 22-23, 25 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding dependent claim 5, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device for a radiometer wherein the central segments of the segmented mirror are larger than outer segments.

Regarding dependent claim 6, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device comprising of two actuators (X-Actuator and a Y-Actuator) for controlling the direction of the light beam in two dimensions on the measuring surface.

Regarding dependent claims 10-11, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device wherein the piezoactuator is partially metallized; the light beam falling upon the metallized part of the actuator so that the piezoactuator changes the direction of the light beam in response to a voltage applied to same.

Regarding dependent claim 15, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device for a radiometer wherein the central segments of the segmented mirror are larger than outer segments.

Regarding dependent claim 16, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device comprising of two actuators (X-Actuator and a Y-Actuator) for controlling the direction of the light beam in two dimensions on the measuring surface.

Regarding dependent claim 22, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device for a radiometer wherein the points are illuminated in a predefined order at a frequency of up to 20 Hz and the frequency being in a monotonous relationship with the absolute value of the time derivative of the temperature measured by the radiometer.

Regarding dependent claim 23, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device for a radiometer wherein the points are illuminated by the light beam at a frequency of more than 25 Hz.

Regarding dependent claim 25, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device for a radiometer wherein a first subgroup of all points is illuminated in a predefined order at a frequency of up to 20 Hz and the second subgroup of all points is illuminated at a frequency of up to 25 Hz, the first and second subgroup display measured states.

Regarding dependent claim 35, the prior art, as stated supra, does not disclose or fairly suggest of a sighting device wherein moreover an overall receptacle is provided in the sighting device; the overall receptacle again having a hollow space for each individual receptacle, wherein an inner surface area of each hollow space of the overall

receptacle has a positive fit with an outer shape of the individual receptacle pushed into the hollow space.

20. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FP

OTILIA GABOR
PRIMARY EXAMINER